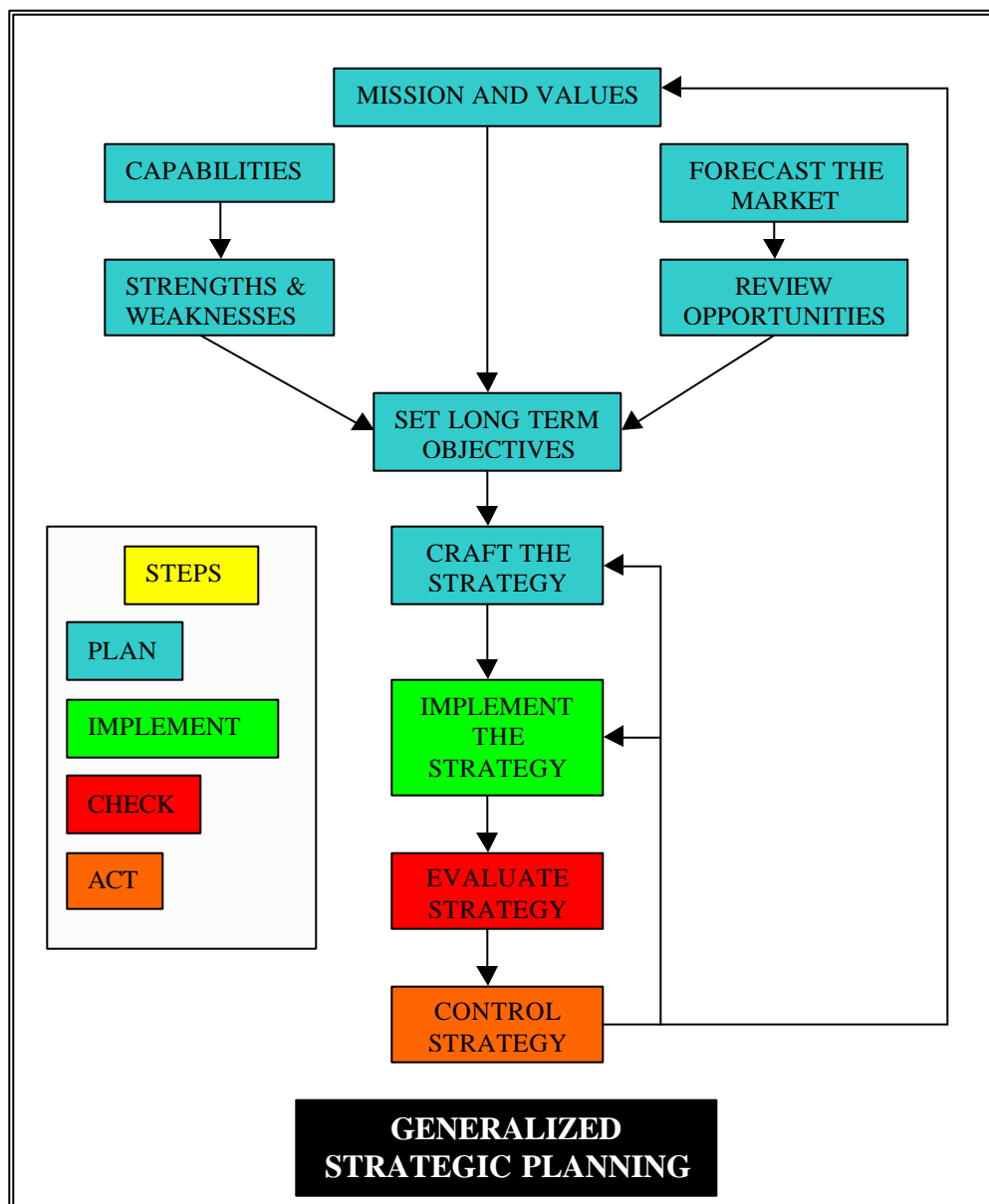


INTRODUCTION TO ISO 14001

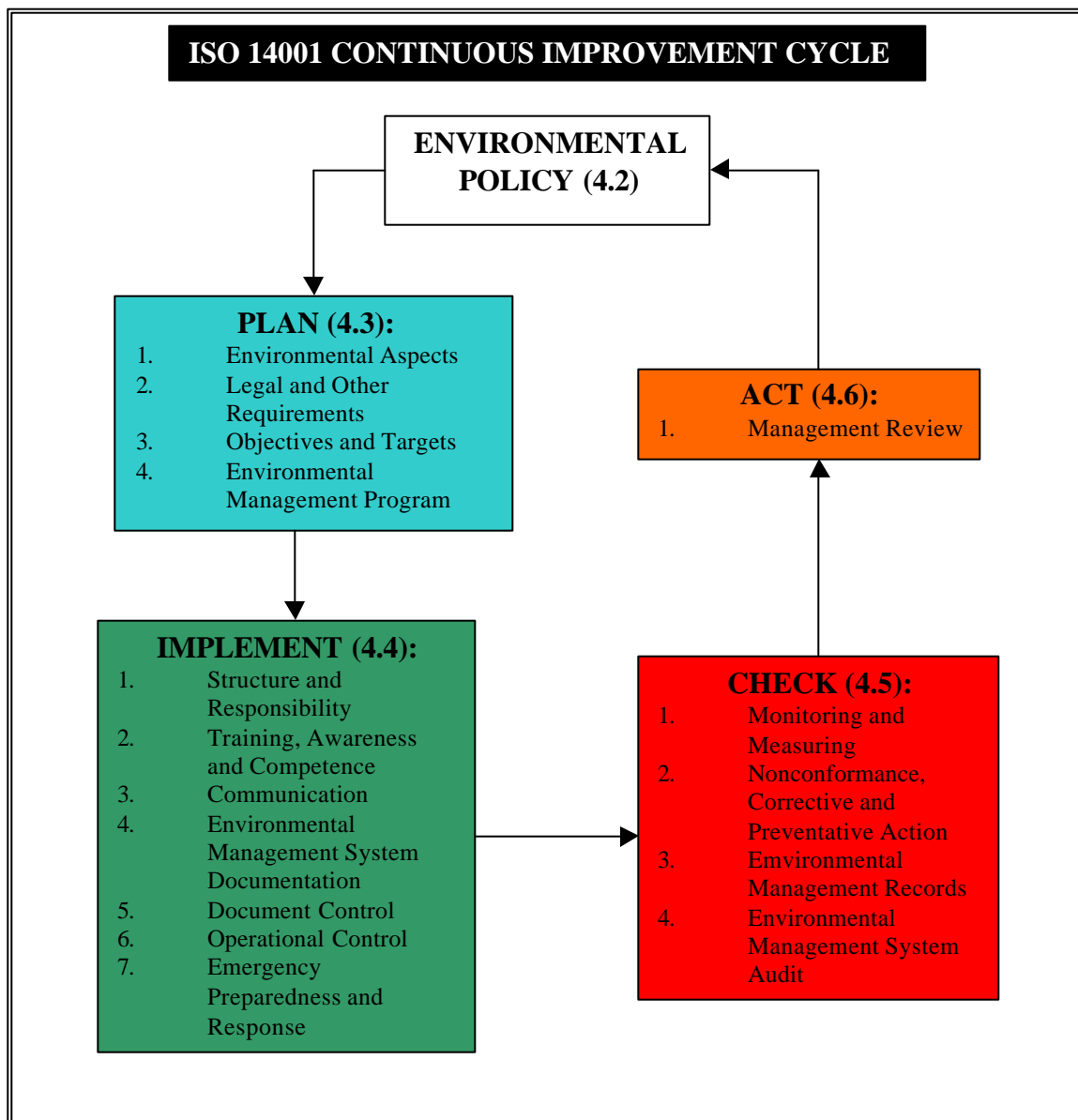
An environmental management system, such as ISO 14001, is a powerful tool that can be utilized by an organization. The obvious beneficiaries are those organizations that have the potential to directly interact with the environment. However, other groups have the potential to benefit from the successful installation of an environmental management system. These other groups include adjacent property owners and environmental organizations. Their potential principal mode of interaction will be in the development of the list of significant environmental aspects. Therefore the material contained in this website has utility for all parties concerned about the environment.

An organization normally constructs a strategic plan for its activities. The strategic plan might fit the simplified pattern laid out in the following figure.



The Generalized Strategic Planning process in the preceding figure follows the "plan-implement-check-act" cycle. ISO 14001 is based upon the same concept. One additional concept is highlighted within ISO 14001. The additional concept is "continual improvement". The "continual improvement" concept is aimed at improving on a regular basis the overall environmental management system. How do you improve the environmental management system? ISO 14001 requires that you evaluate the organization's interactions/impacts with the environment. Following this evaluation each impact is ranked based upon its significance. The most significant interactions/aspects are then addressed within the frame of the environmental management system for that cycle. Under the "continual improvement" concept the organization is attempting to continually reduce its interaction/impact upon the environment.

What does a "plan-implement-check-act" cycle look like under ISO 14001?



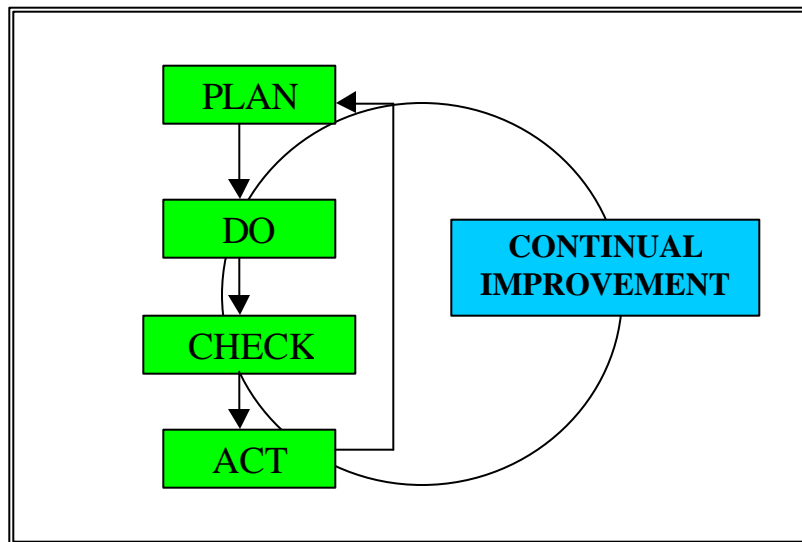
The conceptual consistency between a generalized strategic plan that an organization employs and ISO 14001 elements is demonstrated in the following table.

ELEMENT	GENERALIZED STRATEGIC PLAN	ISO 14001
Vision/Mission	Mission and Values	Environmental Policy
Plan	Elements: 1. Forecast the Market 2. Review Opportunities 3. Capabilities 4. Strengths and Weaknesses 5. Set Long Term Objectives 6. Craft the Strategy	Planning Elements: 1. Environmental Aspects 2. Legal and Other Requirements 3. Objectives and Targets 4. Environmental Management Program
Implementation	Implement the Strategy	Implementation Elements: 1. Structure and Responsibility 2. Training, Awareness and Competence 3. Communication 4. Environmental Management System Documentation 5. Document Control 6. Operational Control 7. Emergency Preparedness and Response
Check	Evaluate Strategy	Checking Elements: 1. Monitoring and Measuring 2. Nonconformance, Corrective and Preventative Action 3. Environmental Management Records 4. Environmental management System Audit
Act	Control Strategy	Act Elements: 1. Management Review

The preceding discussion underscores the fact that ISO 14001 is compatible with any organization's strategic planning. The planning element requires that the organization forecast the market and set long term objectives. With respect to ISO 14001 that translates to determining the environmental aspects of the operation and setting objectives and targets to minimize and/or eliminate the impact of those environmental aspects. The implementation element of both the strategic planning and ISO 14001 requires that the organization assemble all the necessary functions to carry out the strategy. The check element of both requires that an ongoing audit process be established to review the progress. Finally, the act element requires the organization to review what has been accomplished and decide what needs to be accomplished next.

The most important underlying theme that supports both generalized strategic planning and ISO 14001 is continual improvement. An organization must adapt and change with respect to its products, services or activities to remain viable. ISO 14001 stresses the importance of continual improvement. The amount of information that is becoming available with respect to environmental issues and problems is increasing at a dramatic rate. The review and assimilation of that material will be a challenging task for any organization. That task will need to be addressed to satisfactorily address continual improvement under ISO 14001. If an organization decides that it needs to be proactive with respect to the environment ISO 14001 is a management tool that should be examined carefully.

REMEMBER



ISO 14001 OVERVIEW

The ISO 14001 standard is an environmental management system standard not an environmental performance standard. The standard is designed to establish a management system that evaluates and addresses how the organization interacts with the environment. The standard can be broken down into four distinct sections: plan, implement, check and act. Every section of the standard contains the word "shall". That simply means that each section of the standard must be addressed in a manner that satisfies the intent of that section. The most commonly utilized verbs in the standard are "establish" and "maintain". These verbs are normally associated with the noun "procedure". They are normally combined in the following manner "establish and maintain a procedure". What is different with respect to ISO 14001 and ISO 9001 is that the term "documented procedure" is excluded from the majority of the ISO 14001 requirements. Your organization should carefully evaluate the need for additional "documented procedures" to support the environmental management system for those sections where it is not required by the standard. The presence of additional "documented procedures" might provide the basis for more precise and accurate operation and internal and third party audits.

SECTION OVERVIEW

- A. General Requirements (4.1)
 - There must be a documented system that meets all the requirements contained in the standard.
- B. Environmental Policy (4.2)
 - Relevant to the organization's activities.
 - Comply with legislation.
 - Commits to prevention of pollution.
 - Commits to continual improvement.
 - Commits to setting environmental objectives and targets.
 - Available to all employees and the public.

PLAN

- C. Environmental Aspects (4.3.1)
 - Identified for normal operating conditions, foreseeable deviations and emergencies.
- D. Legal and Other Requirements (4.3.2)
 - Relevant legislation, regulatory and other environmental targets must be available.
- E. Objectives and Targets (4.3.3) [*Documented*]
 - Environmental objective and targets must be established that are consistent with the environmental policy.
- F. Environmental Management Program (4.3.4)
 - Programs for the achievement of objectives and targets must be established, and responsibilities must be designated.

IMPLEMENT

- G. Structure and Responsibility (4.4.1) [*Documented*]
 - Adequate human resources and appropriate skills must be provided.
 - A management representative must be assigned to insure that the EMS is implemented and to report performance to management.
- H. Training, Awareness and Competence (4.4.2)
 - Employees must be aware of environmental objectives.
 - Employees with responsibility in the area of the environmental objectives must have appropriate training and understand the consequences of the functions.
- I. Communication (4.4.3)
 - A system must be in place for receiving and responding to communications regarding environmental aspects from both internal and external sources.
- J. Environmental Management System and Documentation (4.4.4) [*Documented*]
 - There must be a documented description of the environmental management system that relates the policy, objectives and targets, and responsibilities.
 - It must describe how to access any other associated documentation (i.e. procedures, lists and/or records).
- K. Document Control (4.4.5)
 - There must be a document control system.
- L. Operational Control (4.4.6) [*Documented*]
 - Documented procedures must be prepared when they are needed to insure conformance with the requirements of environmental management system.
 - Suppliers and contractors should be informed of the procedures.
- M. Emergency Preparedness and Response (4.4.7)
 - Foreseeable emergency situations must be identified and appropriate procedure(s) prepared for implementation.
 - The procedure(s) must be tested periodically.

CHECK

- N. Monitoring and Measurement (4.5.1) [*Documented*]
 - There must be documented procedures for monitoring activities that impact on the environment.
 - Monitoring equipment must be calibrated.
 - There must be a procedure for evaluating compliance with relevant environmental legislation and regulations.
- O. Nonconformance and Corrective and Preventative Action (4.5.2)
 - There must be a process in place for handling nonconformance(s) based upon investigation and subsequent corrective action.
- P. Environmental Management Records (4.5.3)
 - Record retention and archiving must be specified.
- Q. Environmental Management System Audit (4.5.4)

- The environmental management system must be audited to insure that it is operating as designed.
- The results of the audit must be reported to management.
- Nonconformance(s) must be addressed.

ACT

R. Management Review (4.6)

- Management must review the environmental management system, with special emphasis on the policy and the objectives, to ensure that environmental management system is still effective to the organization's activities.
- If the conditions under which the previous environmental aspects were evaluated have changed, the policy and objective(s) and target(s) may need to be reevaluated and modified.

ISO 14001 DEFINITIONS (3.0)

The definition section of ISO 14001 provides the foundation of the entire standard. They need to be understood by any organization intending to establish an environmental management system.

"3.1 -- Continual Improvement

Process of enhancing the environmental management system to achieve improvements in overall environmental performance in line with the organization's environmental policy.

NOTE -- The process need not take place in all areas of activity simultaneously."

The requirement that the environmental policy include a commitment to continual improvement highlights the importance of this definition. This definition applies strictly to the operation of the environmental management system. It does not apply to environmental performance. It is assumed that if the organization continually improves its environmental management system that environmental performance will continually improve.

"3.2 -- Environment

Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation.

NOTE -- Surroundings in this context extend from within an organization to the global system."

This definition provides the scope of the environmental management system. Note that it includes the environment (air, water, land, flora, fauna and humans), and it includes natural resources. This means that energy and raw materials must be considered within the environmental management system. This definition does not include the need to add the areas of safety and/or industrial hygiene within the environmental management system.

"3.3 -- Environmental Aspect

Element of an organization's activities, products or services that can interact with the environment.

NOTE -- A significant environmental aspect is an environmental aspect that has or can have a significant environmental impact."

This is a definition that cuts a large path in its application within the standard. The important word within the definition is "interact". This implies either a positive, neutral or negative impact. This approach leads to the potential for a large listing of environmental aspects from which significant environmental aspects can be drawn for consideration as environmental objectives.

"3.4 -- Environmental Impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services."

The present and potential impact of every environmental aspect should be evaluated. The combination of the environmental aspect and environmental impact is the important first step in determining the significance of an environmental aspect.

"3.5 -- Environmental Management System

The part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy."

No additional discussion required.

"3.6 -- Environmental Management System Audit

A systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization's environmental management system conforms to the environmental management system audit criteria set by the organization, and for communication of the results of this process to management."

The process of verifying that policies, procedures and instructions that constitute the environmental management system are being followed at all appropriate levels of the organization.

"3.7 -- Environmental Objective

Overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantifiable where practicable."

These are the specific goals that are necessary to implement the environmental policy. There should be a correlation between the list of significant environmental aspect(s) and the environmental objective(s). The environmental objective should be quantifiable and measurable.

"3.8 -- Environmental Performance

Measurable results of the environmental management system, related to an organization's control of its environmental aspects, based upon its environmental policy, objective and targets."

No additional discussion required.

"3.9 -- Environmental Policy

Statement by the organization of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objectives and targets."

The entire environmental management system is designed to achieve the commitments of the environmental policy. It provides the framework for setting of the environmental objectives and targets. The process of developing the environmental policy should be based upon the significant environmental aspects. This process will ensure that the environmental objective(s) and targets(s) support the environmental policy.

"3.10 -- Environmental Target

Detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives."

An environmental target is a specific task in the achievement of an environmental objective. Environmental targets must be stated in a measurable and quantifiable manner.

"3.11 -- Interested Party

Individual or group concerned with or affected by the environmental performance of an organization."

The organization will need to have a process in place for communicating with the public, and to consider the interests of those individuals or groups that are affected by the organization's environmental performance.

"3.12 -- Organization

Company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration.

NOTE -- For organizations with more than one operating unit, a single operating unit may be defined as an organization."

No additional discussion required.

"3.13 -- Prevention of Pollution"

Use of processes, practices, materials or products that avoid, reduce or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution.

NOTE -- The potential benefits of prevention of pollution include the reduction of adverse environmental impacts, improved efficiency and reduced costs."

The organization must commit to review and include, where appropriate, the above listed techniques, in the development and implementation of its environmental objective(s) and targets(s).

Non-ISO 14001 Definitions

The following definitions are included in order to avoid confusion.

Conformance

The condition or fact of being in harmony or agreement; correspondence; congruity; similarity.

Compliance

Complying, or giving in to a request, demand, wish, etc. Also--in compliance with, in accordance with.

Please note that conformance is a term that is used with ISO 14001. Compliance is a term that is associated with command and control activities such as environmental laws.

ISO 14001 GENERAL REQUIREMENTS (4.1)

The entire purpose of this section is to clearly state that if an organization desires to maintain and establish an environmental management system pursuant to ISO 14001 that every requirement covered in Section 4, Environmental Management System Requirements, must be addressed. The ISO 14001 standard also contains an "Annex A (Informative) -- Guidance on the use of the specification" section. This section is strictly informative. Nothing contained within Annex A can be utilized in a third party audit process to judge conformance or non-conformance. The only concept contained within ISO 14001 Section 4.1 is that every item contained within Section 4 must be addressed in order to be considered, reviewed and evaluated for compliance with ISO 14001.

Section 4 Requirements:

- 4.2 Environmental Policy
- 4.3 Planning
 - 4.3.1 Environmental Aspects
 - 4.3.2 Legal and Other Requirements
 - 4.3.3 Objectives and Targets
 - 4.3.4 Environmental Management Programs
- 4.4 Implementation and Operation
 - 4.4.1 Structure and Responsibility
 - 4.4.2 Training, Awareness and Competence
 - 4.4.3 Communications
 - 4.4.4 Environmental Management System Documentation
 - 4.4.5 Document Control
 - 4.4.6 Operational Control
 - 4.4.7 Emergency Preparedness and Response
- 4.5 Checking and Corrective Action
 - 4.5.1 Monitoring and Measurement
 - 4.5.2 Nonconformance and Corrective And Preventative Action
 - 4.5.3 Records
 - 4.5.4 Environmental Management Audit
- 4.6 Management Review

ISO 14001 ENVIRONMENTAL POLICY (4.2)

The Environmental Policy statement required under ISO 14001 is the keystone upon which the entire environmental management system is constructed. It is not a public relations document that is posted on the conference room wall or handed out to potentially impacted stakeholder groups. The Environmental Policy is the central focus of the environmental management system. It must contain and clearly communicate the following for the organization:

- Mission and core values with respect to the environment, and
- Commitments to control and improve environmental performance with respect to significant environmental aspects of the organization's products, services and/or activities.

The commitment to control and improve environmental performance with respect to the environment leads to the development of Environmental Objectives and Targets (4.3.3). Once those items have been delineated the rest of the environmental management system is devoted to accomplishing the objectives and targets which fulfil the Environmental Policy. ISO 14001 requires that a coherent and cogent Environmental Policy be developed and implemented.

Content Requirements of the Environmental Policy

- appropriate to the organization's environmental impacts
- provides a framework for setting Environmental Objectives and Targets
- commitment to continual improvement
- commitment to prevention of pollution
- commitment to comply with environmental laws and regulations, and other requirements to which the organization subscribes
- document and implement the Environmental Policy
- communicate it to all employees
- commitment to communicate the Environmental Policy to the public

Appropriate to the Organization's Environmental Impacts

Every organization has unique interactions with and impacts on the environment. An organization attempting to comply with the requirements of ISO 14001 must be able to demonstrate that is fully aware of all relevant environmental issues and their potential impact and importance. The organization will need to review at a minimum the following issues:

- its operation,
- pollutant emissions and releases,
- past environmental performance,

- location,
- land use activities,
- sensitive environmental areas,
- environmental impacts from other organizations nearby,
- environmental legislation and regulation,
- community stakeholder views,
- client and/or customer views,
- etc.

No distinct list will be appropriate to all organizations. The organization must develop its own methodology to investigate relevant environmental issues and their potential impact and importance.

Provides a Framework for Setting Environmental Objectives and Targets

Environmental Objectives are specific and defined goals that need to be achieved in order to meet the requirements of the Environmental Policy. Each Environmental Objective must be traceable back to the Environmental Policy statement. In order to be acceptable under the ISO 14001 standard every action, requirement, procedure, etc., contained within the environmental management system must have its roots in the Environmental Policy statement. If an Environmental Objective is developed that cannot be traced back to the Environmental Policy statement it must be assumed that the Environmental Policy statement is not accurate with respect to the organization's environmental aspects and impacts.

Commitment to Continual Improvement

Definition "3.1 -- Continual Improvement

Process of enhancing the environmental management system to achieve improvements in overall environmental performance in line with the organization's environmental policy."

To conform to this requirement the Environmental Policy statement must contain a requirement for continual improvement. This definition ties together two elements of ISO 14001: the Environmental Policy statement and Management Reviews (4.6). Management Review requires that at least two key elements be examined on a set frequency:

- must review the environmental management system, with special emphasis on the policy and the objectives, to ensure that the system is still effective to the organization's activities; and,
- if conditions under which the previous environmental aspects were evaluated have changed, the policy and the objectives(s) and target(s) may need to be reevaluated and modified.

Continual Improvement, as utilized in ISO 14001, requires that the environmental management system be reviewed and evaluated at a set frequency for changed aspects and impacts. A nominal frequency that appears to be acceptable is yearly.

Commitment to Prevention of Pollution

The requirement to include a commitment to the prevention of pollution in the Environmental Policy statement has one further implication. Once pollution based Environmental Objectives have been established the only requirement is that prevention of pollution be evaluated as one of the alternative approaches in setting the Environmental Target(s). If the prevention of pollution alternative is not the cost-effective approach, then it does not need to be accepted.

Commitment to Comply with Environmental Laws and Regulations, and Other Requirements to Which the Organization Subscribes

The commitment in the Environmental Policy statement is a rather straightforward. ISO 14001 requires a commitment to legal and regulatory compliance. There is not a specific clause contained within ISO 14001 that requires unconditional compliance with all applicable laws and regulations. What is required is as follows:

- identify applicable laws and regulations,
- decide whether in compliance or noncompliance,
- for those areas where noncompliance exists, develop an action plan to correct noncompliance, and
- establish a system to maintain compliance.

Does an organization need to be in full compliance with the appropriate environmental laws and regulations in order to conform with ISO 14001? The answer is a simple no. However, a continued pattern of noncompliance may lead to nonconformance with ISO 14001 due to a lack of an adequate "system to maintain compliance". If the organization subscribes to any codes of practice or voluntary guidelines the Environmental Policy statement will also need to include these agreements.

Document and Implement the Environmental Policy

An executive level manager must sign the Environmental Policy statement. In addition the Environmental Policy statement must be maintained in a manner consistent with Document Control (4.4.5) procedures.

Communicate It to All Employees

This requirement is really a subset of the ISO 14001 section Training, Awareness and Competence (4.4.2). All employees within the organization must understand and recognize the commitments. Additionally, employees of the organization should be able to relate how their job function interacts with the Environmental Policy statement.

Commitment to Communicate the Environmental Policy to the Public

There is a theme in ISO 14001 that favors communication with external stakeholders. When a complete Environmental Policy statement is crafted by the organization an opportunity is created to discuss openly the organization's Environmental

Objectives. These goals, along with mission and core values of the organization, have the potential to foster an open dialogue with outside parties.

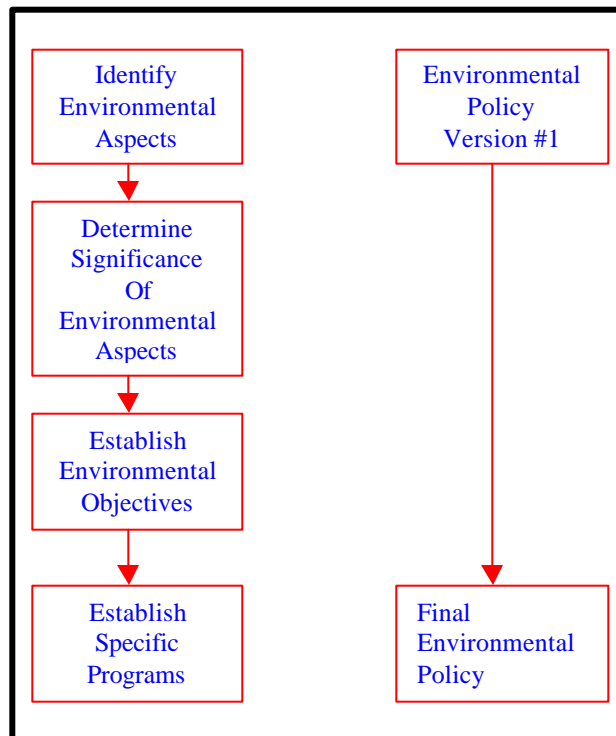
Questions That Need To Be Answered

The following questions will need to be answered in order to determine whether the Environmental Policy Statement meets the intent of ISO 14001:

1. Has executive management defined and signed the organization's Environmental Policy?
2. Appropriate to the nature of the organization's activities, products and/or services?
3. Is the policy appropriate to the organization's scale?
4. Is there a commitment to prevention of pollution?
5. Is there a commitment to continual improvement?
6. Is there a commitment to comply with all appropriate environmental laws and regulations?
7. Is there a commitment to comply with voluntary requirements to which the organization subscribes?
8. Does it provide a framework for establishing Environmental Objectives?
9. Is there a process to review Environmental Objectives?
10. Is it documented?
11. Is it implemented?
12. Do all employees know how their job function relates to the Environmental Policy?
13. Is it available to the public?

ISO 14001 PLANNING REQUIREMENTS (4.3)

In the ISO 14001 standard the planning phase of the standard follows the development of the Environmental Policy statement. However, it may be difficult to finalize the Environmental Policy statement until the planning phase has been completed. The planning phase contains four distinct steps: Environmental Aspects (4.3.1) determination, Legal and Other Requirements (4.3.2) documentation, Objectives and Targets (4.3.3) development, and Environmental Management Program (4.3.4) development. The development of the Environmental Policy statement may need to be an iterative process parallel to identification of the environmental aspects. The process used by an organization might follow the figure drawn below.



Don't be surprised if the development of the Environmental Policy statement evolves into an iterative process as pictured above.

Remember the organization's Environmental Policy statement must do the following:

- communicate the mission and core values with respect to the environment, and
- commit to control and improve environmental performance with respect to the significant environmental aspects of its products, services and/or activities.

In order for the Environmental Policy statement to be complete and functional it will need to be finalized after the Planning (4.3) analysis requirements have been completed. An iterative process will strengthen the Environmental Policy statement and the final environmental management system.

ISO 14001 ENVIRONMENTAL ASPECTS (4.3.1)

The key to a successful registration for conformance with ISO 14001 is to accurately determine the organization's Environmental Aspects and Impacts, arrive at which are the most significant and therefore require the most attention. Two definitions should be reviewed at this point.

"3.3 -- Environmental Aspect

Element of an organization's activities, products or services that can interact with the environment.

NOTE -- A significant environmental aspect is an environmental aspect that has or can have a significant environmental impact."

and

"3.4 -- Environmental Impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services."

There are three distinct requirements contained within this section of ISO 14001. First, the organization shall identify the environmental aspects of its activities, products and/or services. In other words the organization must understand how it interacts with the environment. Second, the organization shall identify the specific environmental aspects that can be controlled, and over which it can be expected to have influence. Third, arrive at a list of significant environmental aspects based upon the individual environmental impact of each environmental aspect. The importance of this third step cannot be underestimated. The final list of significant environmental aspects will provide the basis for the Environmental Policy statement, and the Environmental Objective(s) and Targets. In other words the list of significant environmental aspects drives the entire content and scope of the operational portion of the environmental management system.

Content Requirements of Environmental Aspects

- understand how it interacts with the environment
- control versus influence
- arrive at a list of significant environmental aspects based upon impacts
- develop a procedure to support the three step decision making process

Identify Environmental Aspects

All of the organization's activities, products and/or services must be included within the environmental aspects review framework. The organization must assemble a listing of potential environmental aspects. The listing might include the following:

1. releases of material to the air, water and/or soil;
2. disposal of waste;
3. energy and natural resource consumption;
4. noise levels;
5. transportation and/or storage of materials;
6. manufacturing processes;
7. etc.

The purpose of this activity is not to determine the importance of each aspect. The purpose is to create a complete listing of how the organization interacts with the environment. The organization must include the effect of non-routine situations in the listing such as emergency conditions, start-up and shutdown activities. The procedure that is developed to produce the list of environmental aspects must recognize the concept of continual improvement. The procedure and the list of aspects can be influenced by future actions such as new legislation, changes in operations, etc. The Management Review (4.6) section mandates continual improvement because the environmental management system must be reviewed on a periodic basis to insure that it is still effective based upon the organization's activities, products and/or services.

Aspects...Controlled...Influence

The organization shall identify the specific environmental aspects that can be controlled, and over which it can be expected to have influence. This requirement leads to confusion in its interpretation. The simple approach here is to include only those aspects over which the organization has total control. The total control approach might be limiting when the question of conformance to ISO 14001 is evaluated. An organization that produces a product that is utilized by another organization might take the position that it cannot control the final disposal of that product. However, the producing organization might be evaluated for conformance with ISO 14001 based upon whether it had employed life cycle analysis in the design and production of the product. This is a "grey" area in the standard. The organization must develop a procedure for the determination of control and influence. The procedure must define whether an organization is going to be proactive, or approach this step in a narrow fashion.

Significant Environmental Aspects

The process of arriving at a list of Significant Environmental Aspects must be a reasonable and understandable procedure. The procedure could be based upon the following criteria:

1. perceived risk(human health vs. ecosystem);
2. impact analysis (internal, local, regional, global);
3. probability of occurrence;

4. direct or indirect control;
5. regulated or non-regulated;
6. resource utilization;
7. community interest;
8. etc.

Utilizing the above information an overall risk-based matrix can be developed that evaluates and ranks all of the aspects. The information utilized in the risk-based matrix should be quantifiable rather than qualitative. The significance procedure developed by the organization will be thoroughly reviewed for conformance under ISO 14001.

Questions That Need To Be Answered

The following questions will need to be answered in order to determine whether the Environmental Aspects section meets the intent of ISO 14001:

1. Has the organization developed a procedure(s) to identify the environmental aspects of its activities, products and/or services that it can control and over which it can be expected to have an influence?
2. Does the procedure include the evaluation of non routine conditions?
3. Does the organization utilize and improve this procedure(s)?
4. Has the organization utilized the procedure(s) to determine which of its environmental aspects have, or can have, significant impacts on the environment?
5. Is the information relative to the environmental aspects kept up to date?

ISO 14001 LEGAL AND OTHER REQUIREMENTS (4.3.2)

In order to be in conformance with this provision of ISO 14001 an organization must be able to demonstrate three specific points. First, the organization must understand which environmental laws and regulations (federal, state and local) govern its operations. Second, it must also be able to explain how the requirements of the appropriate laws and regulations apply to the organization. Third, the organization must be able to demonstrate that it keeps up to date with the appropriate laws and regulations and their specific requirements. In addition if the organization voluntarily subscribes to any environmental guidelines and/or requirements (trade or association principles, consent orders, contracts, etc.) the same three points must be followed. A procedure should be developed and maintained in order to meet the preceding three requirements.

ISO 14001 does not require documentation for the Legal and Other Requirements section (4.3.2). However, the only practical way to demonstrate conformance is to assemble in one place a list and copies of each applicable environmental law, regulation and voluntary subscription along with the supporting permits and/or contracts as evidence.

Questions That Need To Be Answered

The following questions will need to answered in order To determine whether the Legal and Other Requirements Section meets the intent of ISO 14001:

1. Has the organization developed a procedure to identify applicable environmental legal and regulatory requirements?
2. Has the organization developed a procedure to identify any voluntary requirement to which it subscribes?
3. Does the organization have a procedure to insure completeness and availability of the required documents?
4. Is the information relative to Legal and Other Requirements kept up to date?

ISO 14001 ENVIRONMENTAL OBJECTIVES AND TARGETS (4.3.3)

After the list of Significant Environmental Aspects has been assembled the environmental management system requires that an organization establish its documented Environmental Objectives and Targets. Two definitions should be reviewed at this point:

"3.7 -- Environmental Objective

Overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantifiable where practicable."

These are the specific goals that are necessary to implement the environmental policy. There should be a correlation between the list of significant environmental aspect(s) and the environmental objective(s). The environmental objective should be quantifiable and measurable.

and

"3.10 -- Environmental Target

Detailed performance requirement quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives."

An environmental target is a specific task in the achievement of an environmental objective. Environmental targets must be stated in a measurable and quantifiable manner.

As stated above Environmental Objectives are essentially "goals" that are established to meet the "vision" statement of the organization. The Environmental Policy (4.2) statement is the "vision" statement of the organization. In order to meet the Environmental Objective or "goal" a detailed "workplan" needs to be established. The "detailed" workplan is made up of one or more Environmental Targets. ISO 14001 requires that the objectives and targets contain quantifiable performance and schedules. In other words the commitments of the Environmental Policy statement and the Environmental Objectives must be translated into detailed plans and time frames which are designed to achieve the commitments of the policy. Every level of the organization must be examined for inclusion in order to develop complete and effective Environmental Targets. ISO 14001 requires that the organization must have documented the Environmental Objectives and Targets.

There are four distinct requirements contained within this section of ISO 14001. First, the organization must consider the results enumerated from the Legal and Other Requirements (4.3.2) section. Second, the organization must utilize the list of Significant Environmental Aspects delineated in the Environmental Aspects (4.3.1) section of the standard. Third, the organization must follow the prevention of pollution commitment that is a content requirement of the Environmental Policy (4.2) statement. Finally, the

organization must ensure that the views of interested parties are considered. These four topics drive the design and construction of the Environmental Objectives and Targets.

Content Requirements of Environmental Objectives and Targets

- consider material developed in legal and other requirements section
- consider the significant environmental aspects
- utilize prevention of pollution where applicable
- consider views of interested parties

Consider Legal and Other Requirements

A reasonable minimum position is that an objective be established for any products, services and/or activities that do not comply with existing applicable environmental laws and regulations. However, a more appropriate position might be to establish an overall objective for all the applicable environmental laws and regulations and their corresponding requirements. That overall objective could then be subdivided for the purpose of setting specific individual targets. There is no requirement within ISO 14001 to go beyond the requirements of the applicable environmental laws and regulations. Once compliance with a certain requirement is met, the objective and associated target could be modified to require maintenance at that level.

Consider Significant Environmental Aspects

Once Legal and Other Requirements have been addressed the list of Significant Environmental Aspects provides the next basis for establishing objectives and targets. No requirement exists in ISO 14001 that every Significant Environmental Aspect must have an established an objective and target. However, the organization must be able to show that it reviewed and evaluated every Significant Environmental Aspect in the process of establishing its objective and targets. If a Significant Environmental Aspect is not carried forward to the objective level the organization must provide a plausible and rational position. The potentially acceptable reasons include financial resources and technology. Financial resource limitations may require an organization to prioritize its actions. Additionally technology may not be available to address the control of a specific Significant Environmental Aspect. In this case the organization might want to consider crafting an objective and target with the purpose of evaluating potential innovative technology to address this limitation.

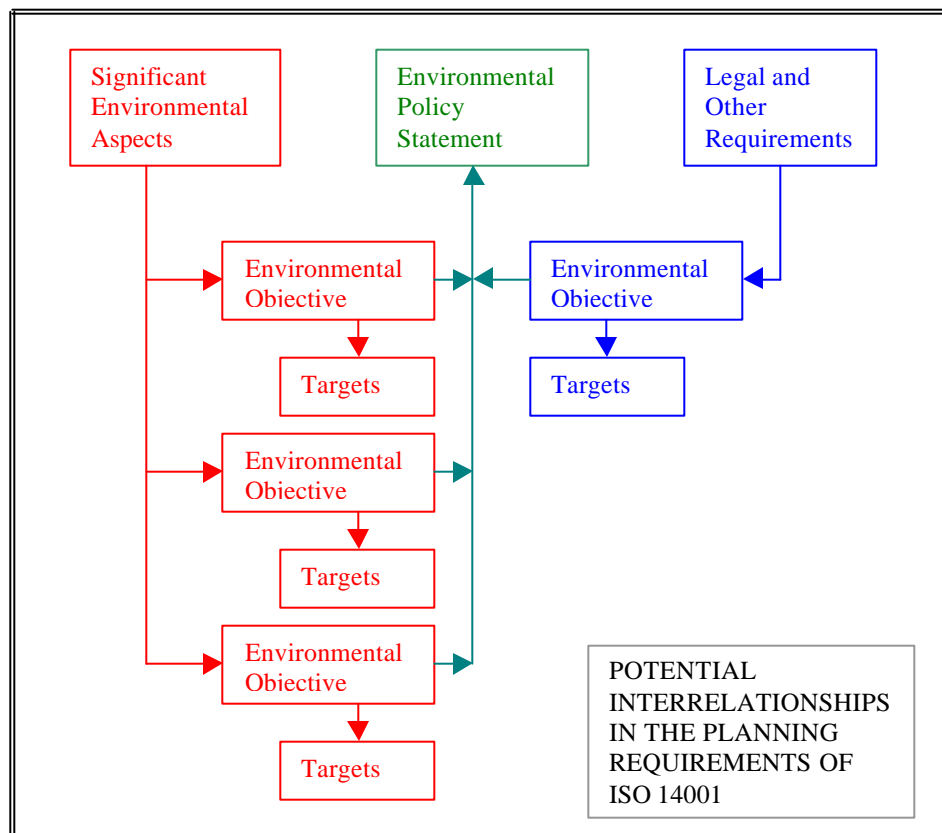
Prevention of Pollution

The requirement to include prevention of pollution concepts has its roots in the content requirements of the Environmental Policy (4.2) section. An organization does not have to employ the concept of prevention of pollution in the development of Environmental Targets. It only has to evaluate the concept of prevention of pollution as one of the alternative approaches for establishing and meeting the target requirements. If the prevention of pollution approach is not the most cost-effective approach, then it does not have to be employed in that instance.

Views of Interested Parties

The Communication (4.4.3) section of ISO 14001 requires that the organization develops and maintains a system for communicating with external parties. This requirement also requires that the organization have a process for considering their views. ISO 14001 does not require the organization to automatically include views of outside parties in the objective and target construction process. This is "**grey**" area within the standard. The organization will need to develop and maintain a process for accepting, evaluating and addressing outside comments.

Remember the Environmental Objectives are the "goals" that support the "vision" contained in the Environmental Policy statement.



Questions That Need To Be Answered

The following questions will need to be answered in order to determine whether the Environmental Objective and Target Section meets the intent of ISO 14001:

1. Did the organization utilize the following when established its objectives and targets:
 - legal and other requirements?
 - significant environmental aspects?
 - commitment to prevention of pollution?
 - views of interested parties?
2. Are there appropriate objectives and targets for every level of the organization?
3. Are the objectives and targets consistent with the Environmental Policy statement?
4. Are the objectives and targets documented?

ISO 14001 ENVIRONMENTAL MANAGEMENT PROGRAMME (S) (4.3.4)

In order to be in conformance with this provision of ISO 14001 an organization must be able to demonstrate four specific points. First, it must demonstrate that it has established management programs for achieving the Environmental Objectives and Targets. Second, it must demonstrate that it has assigned responsibility at each appropriate level of the organization in order to achieve the Environmental Objectives and Targets. Third, the organization must specify the time frames and the mechanisms needed to achieve the Environmental Objectives and Targets. Fourth, under the principle of continual improvement, the organization must modify its environmental management program for "changed" conditions if they occur.

In general a program designed to achieve the desired endpoint must support every objective and subsequent target. Responsibility for management and leadership must also be assigned where it is necessary and appropriate to complete the task. Timeframes should be clearly outlined within the management program. If additional technology, equipment, staffing, etc. are needed to accomplish the tasks, then these "mechanisms" must be supplied. Continual improvement is referenced within this section of ISO 14001 in order to reinforce its importance within the standard.

Questions That Need To Be Answered

The following questions will need to be answered in order to determine whether the Environmental Management Programs Section meets the intent of ISO 14001:

1. Has the organization established programs for meeting its environmental objectives and targets?
2. Has responsibility been assigned at all appropriate levels of the organization?
3. Has a schedule(s) been established to meet all of the targets?
4. Have the appropriate "mechanisms" been supplied?
5. Is the environmental management program followed within the organization?
6. Utilizing the principle of continual improvement does the organization modify as necessary its environmental management programs?

ISO 14001 IMPLEMENTATION AND OPERATION REQUIREMENTS (4.4)

In the ISO 14001 standard the implementation and operation phase of the standard follows the development of the Environmental Policy statement and the planning phase. This overall section of the standard discusses the necessary elements for the implementation and operation of the environmental management system. This section of the standard contains seven distinct elements: Structure and Responsibility (4.4.1), Training, Awareness and Competence (4.4.2), Communications (4.4.3), Environmental Management System Documentation (4.4.4), Document Control (4.4.5), Operational Control (4.4.6), and Emergency Preparedness and Response (4.4.7).

There is a basic question that needs to be addressed for each element within Section 4.4.

- | | |
|--------|--|
| 4.4.1 | Structure and Responsibility
<i>Who does what?</i> |
| 4.4.2. | Training, Awareness and Competence
<i>Who needs to be trained?</i> |
| 4.4.3 | Communications
<i>What communication system needs to be established?</i> |
| 4.4.4 | Environmental Management System Documentation
<i>What level of documentation is needed?</i> |
| 4.4.5 | Document Control
<i>How do you keep current and accurate documents?</i> |
| 4.4.6 | Operational Control
<i>How do you insure that the operations are controlled properly?</i> |
| 4.4.7 | Emergency Preparedness and Response
<i>How do you plan and respond to emergency situations?</i> |

The Environmental Policy statement has been crafted and the Environmental Objectives and Targets have been established. Now the organization needs to implement and operate the environmental management system.

ISO 14001 STRUCTURE AND RESPONSIBILITY (4.4.1)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: "Who does what?". In order to answer that question three specific tasks must be addressed under the Structure and Responsibility section of the standard. First, the responsibilities of each individual and unit within the organization must be defined, documented and communicated with respect to operation of the environmental management system. Second, adequate resources must be provided to support the implementation and operation of the environmental management system. Third, a specific representative of management must be assigned who has the responsibility for ensuring that the overall environmental management system conforms to ISO 14001. That individual also must report on the performance of the system.

ISO 14001 does not provide any guidance with respect to the documentation requirement within this section. It is assumed that organizational charts that specifically highlight the responsibilities of each individual and unit within the organization with respect to the environmental management system will meet this requirement. The addition of detailed position and unit descriptions and responsibilities would be a very strong reinforcement to the organization charts. In addition the development of operational plans related to addressing the specific Environmental Objectives and Targets would also be a stronger reinforcement to the organizational charts. The combination of the three above referenced items more than meets the intent of ISO 14001 that roles, responsibilities and authorities are defined and communicated.

Adequate resources must be provided to implement and maintain the environmental management system. Resources can be broken down into two basic categories: manpower and technology. Management must provide the necessary workforce to implement and maintain the environmental management system. In addition that workforce must have the appropriate level of skills to support the effort. The technology resources will be dependent upon the targets that have been established. If the deployment of new technology is required to meet a target, then it must be provided.

The third task requires that a management representative be appointed who has the responsibility and authority to perform two overall tasks. First, the management representative must ensure that the environmental management system is implemented and maintained as required by ISO 14001. Second, the management representative will need to regularly report to senior management on the performance of the environmental management system with emphasis on continual improvement.

This section of the standard underscores the importance of the intimate involvement of top management in the process of implementing and managing an environmental management system. This section of the standard requires top management to assign responsibility and authority to one or more individuals to manage, report and correct, when necessary, the overall system. Top management is also required

to supply the necessary human, financial and technical resources to foster and support the implementation and operation of the environmental management system.

Questions That Need To Be Answered:

The following questions will need to be answered in order to determine whether the Structure and Responsibility Section meets the intent of ISO 14001:

1. Has the organization defined the roles, responsibilities, and authorities of its employees with respect to the environmental management system?
2. Have the above been documented and communicated?
3. Have the following resources been provided to implement and maintain the system?
 - a. human resources (manpower),
 - b. special skills,
 - c. technology, and
 - d. financial resources.
4. Has a management representative been appointed?
5. Does the management representative have the following defined role:
 - a. establishing ISO 14001 requirements,
 - b. determining whether ISO 14001 requirements have been implemented,
 - c. determining whether the ISO 14001 conformance is maintained,
 - d. reporting to top management on conformance and continual improvement.

ISO 14001 TRAINING, AWARENESS AND COMPETENCE (4.4.2)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: "**Who needs to be trained?**". The organization must determine overall training needs required for competence with respect to the environmental management system. In order to answer that question two specific points will need to be addressed under the Training, Awareness and Competence section of the standard. First, the entire organization must receive training that provides a baseline understanding of the concepts underlying the environmental management system. Second, individuals and units that have the potential to perform activities which could cause significant impact on the environment may require specific technical and skill training related to those impacts.

The baseline training that covers the entire organization should cover the following issues:

- A. the importance of the environmental management system (environmental policy statement, objectives and targets, etc.);
- B. the various roles within the organization in achieving and maintaining the environmental management system; and,
- C. the consequences of deviating from the environmental management system.

In summary every individual in the organization must understand the conceptual requirements of the environmental management system and their specific role.

The specific technical and skills training should be focused on two distinct areas. First, training should be provided for individuals and units that are responsible for activities or processes that may create significant environmental impacts. The scope and degree of training will depend upon the complexity of the process and the level of education and experience of the personnel involved. The organization must determine the necessary level of competence required. Second, the individuals and units responsible for emergency preparedness and response should be trained and competent to respond under the procedures developed to respond to those events if and when they occur.

The organization must provide both general awareness training and specific technical and skills training where appropriate. For both cases the organization must have developed competency standards.

Questions That Need To Be Answered:

The following questions will need to be answered in order to determine whether the Training, Awareness and Competence Section meets the intent of ISO 14001:

1. Has the organization defined its training needs?
2. Has the entire organization been provided baseline training related to the following?
 - a. importance of the EMS,
 - b. roles within organization related to the EMS, and
 - c. consequences of deviating from the EMS.
3. Does the organization require and provide training for those positions that could have a significant impact on the environment based upon education and experience?
4. Does the organization require and provide training with respect to emergency preparedness and response?
5. Has the organization developed competency standards?

ISO 14001 COMMUNICATION (4.4.3)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: **"What communication system needs to be established?"**. In order to answer that question three specific points need to be addressed. First, the organization must establish and maintain a procedure to facilitate internal communication within the organization with respect to the overall environmental management system. Second, the organization must establish a system for receiving and responding to communication from external parties. Third, the organization should determine whether it will communicate to external parties information on its significant environmental aspects.

The internal communication requirement does not introduce any significant new requirements. The general awareness training that has already been outlined under Section 4.4.2 provides the foundation for response to this point. The development and transmission of the Environmental Policy statement, Significant Environmental Aspects, and the Environmental Objectives and Targets is the core of the environmental management system.

The standard contains the word "relevant" in the clause relating to external communication. The organization should track all external communications, and respond when it considers the question and/or communication to be "relevant" to its products, services and/or activities. It is left to the organization to determine what is a "relevant" communication.

The final requirement of this section of the standard is that the organization should decide whether it will communicate information about its significant environmental aspects to outside parties. There is no specific requirement in the standard that the organization provide any information beyond its Environmental Policy statement to external parties. The organization must only "record its decision" as to whether it will communicate this information to outside parties.

This section of the ISO 14001 standard is very **"grey"**. It is obvious that with respect to the functioning of the environmental management system that efficient and timely communication would be beneficial. Therefore, the standard requires efficient internal communication. With respect to external party communication then standard basically leaves it up to the organization as to how it desires to communicate by relying on the words "relevant" and "record its decision".

Questions That Need To Be Answered:

The following questions will need to be answered in order to determine whether the Communication Section meets the intent of ISO 14001:

1. Does the organization have an internal communication process for the environmental management system?
2. Does the organization have a process in place for receiving and responding to "relevant" external communications?
3. Has the organization decided whether it will communicate to external parties information with respect to its significant environmental aspects?
4. If the organization has decided not to communicate information to external parties with respect to its significant environmental aspects, has it established a record of that decision?

ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM DOCUMENTATION (4.4.4)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: **"What level of documentation is needed?"**. In order to answer that question three specific tasks must be addressed under the Environmental Management System Documentation section of the standard. First, the organization must describe the foundation elements of the environmental management system in either paper or electronic format. Second, the preceding description must demonstrate the interaction between the foundation elements of the environmental management system. Third, the description must reference the related documentation.

The use of the word "document" in ISO 14001 provides a direct reference to what are the foundation elements of the environmental management system. Where is the word "document" used in the standard?

USE OF THE WORD "DOCUMENT"

- | | | |
|----|---|---|
| 1. | Environmental Management System Requirements:
Environmental Policy (4.2) | "documented" |
| 2. | Planning:
Objectives and Targets (4.3.3) | "documented" |
| 3. | Implementation and Operation:
Structure and Responsibility (4.4.1)
Environmental Management System
Documentation (4.4.4)
Document Control (4.4.5)
Operational Control (4.4.6) | "documented"
"documentation"
"document"
"documented" |
| 4. | Checking and Corrective Action:
Monitoring and Measurement (4.5.1) | "documented" |
| 5. | Management Review (4.6) | "documented" |

Where in the standard is there an "implied" requirement for documentation?

"IMPLIED" DOCUMENTATION

- | | | |
|----|--|--|
| 1. | Planning:
Environmental Aspects (4.3.1)
Legal and Other Require...(4.3.2)
Environmental Management
Programme(s) (4.3.4) | "establish...procedures"
"establish...procedures"
"establish...programme(s)" |
| 2. | Implementation and Operation:
Training, Awareness and
Competence (4.4.2)
Communication (4.4.3)
Emergency Preparedness
And response (4.4.7) | "establish...procedures"
"establish...procedures"
"establish...procedures" |

"IMPLIED" DOCUMENTATION (cont.)

3. Checking and Corrective Action:		
Nonconformance and Corrective		
And Preventative Action (4.5.2)		"establish...procedures"
Records (4.5.3)		"establish...procedures"
Environmental Management		
System Audit (4.5.4)		"establish...programme(s)"

What approach will conform to the intent of the Environmental Management System Documentation section of ISO 14001? A reasonable approach would be to develop an environmental management system manual. The content of the manual might be as follows:

- A. Planning
 - 1. Environmental Policy Statement
 - 2. Planning Details
 - a. Listing of Significant Environmental Aspects
 - b. Listing of Environmental Objectives and Targets
 - c. Workplans and timelines for each Environmental Objective and Targets

- B. Environmental Management Program Overview
 - 1. Operational Workplans for Each Environmental Objective/Targets
 - a. Structure and Responsibility Charts
 - b. Training, Awareness and Competence Procedures and Evidence
 - c. Communication Procedures and Evidence
 - d. Environmental Management System Manual Procedures and Evidence
 - e. Document Control Procedures and Evidence
 - f. Operational Control Procedures and Evidence
 - g. Emergency Preparedness and Response Procedures and Evidence
 - 2. Checking and Corrective Action
 - a. Monitoring and Measurement Procedures and Evidence
 - b. Nonconformance and Corrective and Preventative Action Procedures and Evidence
 - c. Environmental Management Records Procedures and Evidence
 - d. Environmental Management System Audit Procedures and Evidence

- C. Management Review

Records of continual review of the environmental management system by top management.

The potential benefit to this approach is that it generally follows the overall structure of the standard. First, part A establishes the vision and goals of the organization

(Environmental Policy and the Environmental Objectives and Targets). Second, part B establishes the operational and checking mechanisms required by the standard (including the necessary procedures and evidence). Finally, top management is able to review the evidence developed in part B against the vision and goals established in part A in order to evaluate conformance with ISO 14001.

ISO 14001 does not require that an environmental management system manual be utilized by an organization. However, the manual approach does provide a frame for internal communication and both internal and external audit. It is recommended that the EMS manual be kept as simple and streamlined as possible to meet the intent of this section of the standard.

Questions That Need To Be Answered:

The following questions will need to be answered in order to determine whether the Environmental Management System Documentation Section meets the intent of ISO 14001:

1. Has the organization documented information that describes the foundation elements of the environmental management system and how they interact?
2. Does the documented information reference all the necessary supporting information?

ISO 14001 DOCUMENT CONTROL (4.4.5)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: “How do you maintain current and accurate documents?”. In order to answer that question the following specific tasks must be addressed under the Document Control section of the standard. First, the scope of the overall document control system needs to be defined. Second, within the control system there must be a document authorization or approval requirement. Third, the control system must maintain a revision tracking process. Fourth, the control system must be designed to ensure that the appropriate revisions are available at the workstations where they are employed. Fifth, out of date documents must be promptly removed from the workstation locations. Sixth, out of date documents that need to be archived for historical purposes need to be maintained in a separate location.

The primary purpose of the document control system is to insure that only the current approved documents are employed in the planning and operation of the environmental management system.

Questions That Need To Be Answered

The following questions will need to be answered in order to determine whether the Document Control Section meets the intent of ISO 14001:

1. Has the organization established procedures for controlling all of the documents required by the standard?
2. Does the procedure insure that all the documents can be located at the necessary workstations?
3. Are the following items addressed on each controlled document:
 - a. revision number
 - b. authorized signature
 - c. date of issuance
 - d. readily identified.
4. Does the organization maintain a current master list of authorized documents?
5. Does the organization maintain a process of removing out of date documents?

ISO 14001 OPERATIONAL CONTROL (4.4.6)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: “How do you insure that the operations are controlled properly?”. The purpose of this section of the standard is to insure that the organization has established an operational plan that addresses and supports the previously developed list of Significant Environmental Aspects. First, the organization must identify the operations and activities that are directly associated with the Significant Environmental Aspects. Second, the organization must develop procedures and operational criteria, including maintenance, that address the specific operations and activities associated with the Significant Environmental Aspects. Third, the organization must communicate the procedures and operational criteria to suppliers of products and services that might interact with the established Significant Environmental Aspects.

The first two requirements have previously been evaluated during the interrelated phase of developing the Environmental Policy statement, the Significant Environmental Aspects, and the Environmental Objectives and Targets. This section of the standard reinforces the need for documented procedures for those programs directly related to the attainment of the Environmental Targets. The third point addresses the issue of “control and influence”. This section of the standard addresses the need to communicate relevant portions of the organization’s environmental management system to suppliers and contractors if their products, services and activities have the potential to interact with the organization’s Significant Environmental Aspects.

Questions That Need To Be Answered:

The following questions will need to be answered in order to determine whether the Operational Control Section meets the intent of ISO 14001:

1. Has the organization identified its operations that are associated with its Significant Environmental Aspects?
2. Has the organization developed procedures and operational criteria, including maintenance, that address those operations?
3. Does the organization communicate relevant portions of its environmental management system to suppliers and contractors who have the potential to interact with its Significant Environmental Aspects?

ISO 14001 EMERGENCY PREPAREDNESS AND RESPONSE (4.4.7)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: “How do you plan and respond to emergency situations?”. In order to answer that question three specific tasks must be addressed under the Emergency Preparedness and Response section of the standard. First, the organization must identify the possibilities for accidents and emergency situations. Second, the organization must prepare emergency preparedness and response procedures. Third, the organization should evaluate and revise as appropriate the procedures.

The Emergency Preparedness and Response section of the standard applies to the entire organization. This section of the standard is not limited to the Significant Environmental Aspects. The process here should include, as a minimum, the following steps:

- A. inventorying hazardous substances;
- B. identifying potential accident scenarios;
- C. modeling potential distribution patterns; and,
- D. evaluating potential impacts.

Once the above process has been completed the organization should develop procedures to potentially eliminate the incidents. In addition the organization should develop procedures to respond to the potential accidents. The emergency response procedures should be periodically tested.

Questions That Need To be Answered:

The following questions will need to be answered in order to determine whether the Emergency Preparedness and Response Section meets the intent of ISO 14001:

1. Has the organization evaluated its operations with respect to potential emergency situations and accidents?
2. Has the organization developed procedures to respond to such potential emergency situations and accidents?
3. Does the organization periodically test the procedures?

ISO 14001 CHECKING AND CORRECTIVE ACTION (4.5)

In the ISO 14001 standard the checking and corrective action phase of the standard follows the development of the Environmental Policy statement, the planning phase and the implementation phase. This overall section of the standard discusses the necessary elements of the checking and corrective action process of the environmental management system. This section of the standard contains four distinct elements: Monitoring and Measuring (4.5.1), Nonconformance and Corrective and Preventative Action (4.5.2), Records (4.5.3), and Environmental Management System Audit (4.5.4).

There is a basic question that needs to be addressed for each element within Section 4.5.

- | | |
|-------|--|
| 4.5.1 | Monitoring and Measurement
<i>How does the organization evaluate the key characteristics of the EMS with respect to conformance with both Environmental Objectives and Targets and environmental laws and regulations?</i> |
| 4.5.2 | Nonconformance and Corrective and Preventative Action
<i>How does the organization handle nonconformance with respect to the EMS?</i> |
| 4.5.3 | Records
<i>How does the organization handle records associated with the EMS?</i> |
| 4.5.4 | Environmental Management System Audit
<i>How does the organization conduct environmental audits of the EMS?</i> |

The Environmental Policy statement has been crafted, the Environmental Objectives and Targets have been established, and the development of the implementation and operation phase has been completed. Now the organization needs to implement and operate the data collection (checking) and assessment (corrective action) phase of the environmental management system.

ISO 14001 MONITORING AND MEASUREMENT (4.5.1)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: “How does an organization evaluate the key characteristics of the EMS with respect to conformance with the Environmental Objectives and Targets and compliance with environmental laws and regulations?”. In order to answer that question three specific tasks must be addressed under the Monitoring and Measurement section of the standard. First, the organization must establish a documented procedure to monitor and measure on a set frequency the activities that are related to the Significant Environmental Aspects. Second, the organization must ensure that the devices used to monitor and measure the activities are calibrated properly. Third, the organization must establish a documented procedure for evaluating on a set frequency compliance with applicable environmental laws and regulations.

The first issue is to insure that there is a procedure in place to track the performance of the environmental management system with respect to the Significant Environmental Aspects. The Significant Environmental Aspects are transformed into Environmental Objectives and Targets. The Environmental Targets are designed to be quantifiable. Therefore, the monitoring and measurement procedures must specifically address each established target. The second issue directly requires that the target measurement be accurate and reproducible. The organization must be able to demonstrate that the instrumentation that it utilizes is both appropriate and accurate to the required tasks. In addition the records gathered under the first two issues must be recorded and maintained. The third issue relates to the fact that ISO 14001 requires that an organization evaluate, understand and recognize its obligations with respect to appropriate environmental laws and regulations. This issue should not require any additional activity beyond the all ready existing reporting requirements associated with the appropriate environmental laws and regulations. ISO 14001 does not require compliance with applicable environmental laws and regulations. However, it does require that the organization understand its obligations to utilize the principle of “continual improvement”.

Questions That Need to Be Answered:

The following questions will need to be answered in order to determine whether the Monitoring and Measurement Section meets the intent of ISO 14001:

1. Does the organization have documented procedures to monitor and measure on a set frequency the characteristics of its operation that are related to the significant environmental aspects?
2. Does the organization have proper calibration procedures to insure that measurements are accurate and reproducible?

The following questions will need to be answered in order to determine whether the Monitoring and Measurement Section meets the intent of ISO 14001: (cont.)

3. Does the organization have a documented procedure with a set frequency to evaluate compliance with applicable environmental laws and regulations?
4. Does the organization record and maintain the above information?

ISO 14001 NONCONFORMANCE AND CORRECTIVE AND PREVENTATIVE ACTION (4.5.2)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: "**How does the organization handle nonconformance with respect to the EMS?**". In order to answer that question three specific tasks must be addressed under the Nonconformance and Corrective and Preventative Action section of the standard. First, the organization shall develop a procedure for investigating a nonconformance from the established environmental management system. The procedure must include responsibility and authority for the investigation process. Second, the organization must take the necessary actions to mitigate impacts related to the nonconformance. Third, the organization will need to modify existing procedures based upon the results of the corrective and preventative analysis phase of the investigation in order to prevent future nonconformance.

The purpose of this section of the standard is to provide a process to do the following:

- A. document the nonconformance;
- B. notify those responsible for the mitigation of the nonconformance;
- C. investigate the cause of the nonconformance;
- D. establish a corrective action to prevent reoccurrence;
- E. modify the existing procedure as a preventative action; and,
- F. communicate the changed procedure to the necessary activities within the system.

Where does the evidence of a nonconformance originate? The obvious answer is that they can arise within the overall internal reporting system of the environmental management system. However, nonconformance issues can arise from external sources such as suppliers, end users or other stakeholders. There must be recognition of the potential for external communication relating to nonconformance.

Questions That Need To Be Answered:

The following questions need to be answered in order to determine whether the Nonconformance and Corrective and Preventative Action Section meets the intent of ISO 14001:

1. Does the organization have an established procedure for defining responsibility and authority for:
 - a. investigating nonconformance?
 - b. initiating mitigation activities?
 - c. performing corrective action?
 - d. completing preventative action?
2. Does the organization modify existing procedure when appropriate to prevent nonconcurrences?

ISO 14001 RECORDS (4.5.3)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: "**How does the organization handle records associated with the EMS?**". In order to answer that question three specific tasks must be addressed under the Records section of the standard. First, the organization must establish and maintain a records retention system for all the necessary supporting documentation relating to the environmental management system. Second, the organization must establish document retention timeframes for the records. Third, the records should be created and archived in such a manner that they are traceable and identifiable to generating activity within the organization.

The purpose of this section of the standard is to ensure that the organization maintains in an organized fashion all the necessary documentation that is required by ISO 14001. This section of the standard specifically references training records, audits results, and results of reviews. The records retention system should focus on a larger universe of documents:

1. legal and other requirements,
2. permits,
3. environmental aspects and impacts,
4. environmental training,
5. inspection and calibration information,
6. monitoring data,
7. nonconformance reports and follow-up information,
8. environmental audits,
9. management reviews,
10. emergency preparedness response information,
11. etc.

The content of the records retention system must be able to support and verify the operation of the environmental management system. The organization must establish a retention time frame for the records. Records from permit activities all ready have retention time frames established by regulatory groups. One additional suggestion would be to maintain records related to a previous nonconformance with the environmental management system for a longer time frame than other records. In addition the record retention system should be indexed and archived in such a manner that any searches can be accurately and quickly completed. The records that support the environmental management system are extremely important to the organization with respect to audits and management reviews.

Questions That Need To Be Answered:

The following questions need to be answered in order to determine whether the Records Section meets the intent of ISO 14001:

1. Has the organization established record retention procedures?
2. Do these procedures address record identification, maintenance and retention?
3. Does the organization include all the records necessary to support the EMS within the records retention procedures:
 - a. legal and other requirements?
 - b. permits?
 - c. environmental aspects and impacts?
 - d. environmental training?
 - e. inspection and calibration records?
 - f. monitoring data?
 - g. nonconformance information?
 - h. environmental audits?
 - i. management reviews?
 - j. emergency preparedness?
 - k. etc.

ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM AUDIT (4.5.4)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: "How does the organization conduct environmental audits of the EMS?". In order to answer that question four specific tasks must be addressed under the Management System Audit section of the standard. First, the organization must develop a program and related procedures that define an audit plan of the environmental management system. In addition the program must define frequency of the audit process. Second, the procedures must specify the methodology of the audit process, including the qualifications of the auditors. Third, the audit reports must be submitted to top management. Fourth, the audit reports must provide recommendations directed at correcting any reported nonconformance that was discovered in the audit process.

The audit process discussed in this section of the standard is directed at internal audits. The standard is silent on the frequency issue. Generally accepted practice with a mature ISO 14001 system is a total audit of the system once a year. In the implementation phase of an environmental management system a more frequent audit process might be appropriate. In addition any part of the environmental management system that has been previously determined to be in nonconformance should be audited with an increased frequency. The methodology of the audit process required by the standard requires two distinct steps:

- A. determine whether the environmental management system conforms to the requirements of ISO 14001, and
- B. that the system has been managed as described in the Environmental Policy statement, the Environmental Objectives and Targets, and the related work descriptions and procedures.

It is critical that an audit report that relates a nonconformance be forwarded to top management promptly. The internal audit staff must be competent with respect to the requirements of ISO 14001.

Questions That Need To Be Answered:

The following questions need to be answered in order to determine whether the Environmental Management System Audit Section meets the intent of ISO 14001:

1. Has the organization established a program and procedure for an EMS audit?
2. Are the program and procedure designed to:
 - a. determine conformance to the EMS?
 - b. determine conformance with ISO 14001?
 - c. provide reports to top management?

The following questions need to be answered in order to determine whether the Environmental Management System Audit Section meets the intent of ISO 14001: (cont.)

3. Does program recognize the need for increased audit frequency for areas of the EMS with previous nonconformance?
4. Does the program require competency of the auditors?

ISO 14001 MANAGEMENT REVIEW (4.6)

In order to be in conformance with this provision of ISO 14001 an organization must be able to answer the overall question: **"What must happen during the management review?"**. Top management has three distinct functions in this section of the standard. First, management must conduct reviews of the environmental management system to evaluate its effectiveness. These reviews must occur on a set frequency. Second, management must evaluate the information provided by the environmental management system to determine if that information is adequate to perform the review. Third, based upon the review of the overall system management must weigh the potential benefits related to possible changes in the Environmental Policy statement and the Environmental Objectives. The last requirement has its foundation in the ISO 14001 concept of continual improvement. The results of the management reviews must be documented.

As stated previously the purpose of the management review is to determine the effectiveness of the existing system and to identify opportunities for improvement. What information should be available for the management review in order to facilitate this process? As a minimum the following material should be provided:

- A. compliance information based upon the appropriate environmental laws, regulations and permits;
- B. internal audit reports;
- C. reports on the achievement of Environmental Targets;
- D. information related to potential changes in the environmental aspects and impacts;
- E. summaries of communication from both internal and external parties related to the environmental management system;
- F. etc.

The above information will provide management with a valid database to review and evaluate the possible benefits of changes to the Environmental Policy statement and Environmental Objectives. Management will need to insure that the concept of continual improvement is part of its decision process.

The action of top management under this section of ISO 14001 completes the four-part cycle of plan, implement, check and act. Top management participated in the previous planning phase of the environmental management system. It then assigned responsibility and authority for the implementation and checking phases. At this point top management returns to direct the action phase of the environmental management system. Top management's action and guidance will be the driving force to improve the environmental management system.

Questions That Need To Be Answered:

The following questions need to be answered in order to determine whether the Management Review Section meets the intent of ISO 14001:

1. Does the organization's top management routinely review the EMS for effectiveness?
2. Is there a set schedule for the reviews?
3. Are the management reviews documented?
4. Does the review information include:
 - a. compliance information based upon applicable environmental laws, regulations and permits?
 - b. internal audit reports?
 - c. reports on the achievement of Environmental Targets?
 - d. information related to changing environmental aspects and impacts?
 - e. summaries of internal and external communications related to the EMS?
 - f. etc.
5. Does management include in the review the concept of continual improvement?
6. Does the management review focus on potential modifications to the Environmental Policy statement and the Environmental Objectives?

AUDIT CONFORMANCE QUESTIONS FOR ISO 14001

Environmental Policy Statement (4.2):

- Has executive management defined and signed the organization's Environmental Policy?
- Appropriate to the nature of the organization's activities, products and/or services?
- Is the policy appropriate to the organization's scale?
- Is there a commitment to prevention of pollution?
- Is there a commitment to continual improvement?
- Is there a commitment to comply with all appropriate environmental laws and regulations?
- Is there a commitment to comply with voluntary requirements to which the organization subscribes?
- Does it provide a framework for establishing Environmental Objectives?
- Is there a process to review Environmental Objectives?
- Is it documented?
- Is it implemented?
- Do all employees know how their job function relates to the Environmental Policy?
- Is it available to the public?

Environmental Aspects (4.3.1):

- Has the organization developed a procedure(s) to identify the environmental aspects of its activities, products and/or services that it can control and over which it can be expected to have an influence?
- Does the procedure include the evaluation of non-routine conditions?
- Does the organization utilize and improve this procedure(s)?
- Has the organization utilized the procedure(s) to determine which of its environmental aspects have, or can have, significant impacts on the environment?
- Is the information relative to the environmental aspects kept up to date?

Legal and Other Requirements (4.3.2):

- Has the organization developed a procedure to identify applicable environmental legal and regulatory requirements?
- Has the organization developed a procedure to identify any voluntary requirement to which it subscribes?
- Does the organization have a procedure to insure completeness and availability of the required documents?
- Is the information relative to Legal and Other Requirements kept up to date?

Environmental Objective and Target (4.3.3):

- Did the organization utilize the following when established its objectives and targets:
 - legal and other requirements?
 - significant environmental aspects?
 - commitment to prevention of pollution?
 - views of interested parties?
- Are there appropriate objectives and targets for every level of the organization?
- Are the objectives and targets consistent with the Environmental Policy statement?
- Are the objectives and targets documented?

Environmental Management Programs (4.3.4):

- Has the organization established programs for meeting its environmental objectives and targets?
- Has responsibility been assigned at all appropriate levels of the organization?
- Has a schedule(s) been established to meet all of the targets?
- Have the appropriate "mechanisms" been supplied?
- Is the environmental management program followed within the organization?
- Utilizing the principle of continual improvement does the organization modify as necessary its environmental management programs?

Structure and Responsibility (4.4.1):

- Has the organization defined the roles, responsibilities, and authorities of its employees with respect to the environmental management system?
- Have the above been documented and communicated?
- Have the following resources been provided to implement and maintain the system?
 - human resources (manpower),
 - special skills,
 - technology, and
 - financial resources.
- Has a management representative been appointed?
- Does the management representative have the following defined role:
 - establishing ISO 14001 requirements,
 - determining whether ISO 14001 requirements have been implemented,
 - determining whether the ISO 14001 conformance is maintained,
 - reporting to top management on conformance and continual improvement.

- Training, Awareness and Competence (4.4.2):

- Has the organization defined its training needs?

- Has the entire organization been provided baseline training related to the following?
 - importance of the EMS,
 - roles within organization related to the EMS, and
 - consequences of deviating from the EMS.
- Does the organization require and provide training for those positions that could have a significant impact on the environment based upon education and experience?
- Does the organization require and provide training with respect to emergency preparedness and response?
- Has the organization developed competency standards?

COMMUNICATION (4.4.3):

- Does the organization have an internal communication process for the environmental management system?
- Does the organization have a process in place for receiving and responding to "relevant" external communications?
- Has the organization decided whether it will communicate to external parties information with respect to its significant environmental aspects?
- If the organization has decided not to communicate information to external parties with respect to its significant environmental aspects, has it established a record of that decision?

ENVIRONMENTAL MANAGEMENT SYSTEM DOCUMENTATION (4.4.4):

- Has the organization documented information that describes the foundation elements of the environmental management system and how they interact?
- Does the documented information reference all the necessary supporting information?

DOCUMENT CONTROL (4.4.5):

- Has the organization established procedures for controlling all of the documents required by the standard?
- Does the procedure insure that all the documents can be located at the necessary workstations?
- Are the following items addressed on each controlled document:
 - revision number
 - authorized signature
 - date of issuance
 - readily identified.
- Does the organization maintain a current master list of authorized documents?
- Does the organization maintain a process of removing out of date documents?

OPERATIONAL CONTROL (4.4.6):

- Has the organization identified its operations that are associated with its Significant Environmental Aspects?
- Has the organization developed procedures and operational criteria, including maintenance, that address those operations?
- Does the organization communicate relevant portions of its environmental management system to suppliers and contractors who have the potential to interact with its Significant Environmental Aspects?

EMERGENCY PREPAREDNESS AND RESPONSE (4.4.7):

- Has the organization evaluated its operations with respect to potential emergency situations and accidents?
- Has the organization developed procedures to respond to such potential emergency situations and accidents?
- Does the organization periodically test the procedures?

MONITORING AND MEASUREMENT (4.5.1):

- Does the organization have documented procedures to monitor and measure on a set frequency the characteristics of its operation that are related to the significant environmental aspects?
- Does the organization have proper calibration procedures to insure that measurements are accurate and reproducible?
- Does the organization have a documented procedure with a set frequency to evaluate compliance with applicable environmental laws and regulations?
- Does the organization record and maintain the above information?

NONCONFORMANCE AND CORRECTIVE AND PREVENTATIVE ACTION (4.5.2):

- Does the organization have an established procedure for defining responsibility and authority for:
 - investigating nonconformance?
 - initiating mitigation activities?
 - performing corrective action?
 - completing preventative action?
- Does the organization modify existing procedure when appropriate to prevent nonconformance?

RECORDS (4.5.3):

- Has the organization established record retention procedures?
- Do these procedures address record identification, maintenance and retention?
- Does the organization include all the records necessary to support the EMS within the records retention procedures:
 - legal and other requirements?
 - permits?
 - environmental aspects and impacts?
 - environmental training?
 - inspection and calibration records?
 - monitoring data?
 - nonconformance information?
 - environmental audits?
 - management reviews?
 - emergency preparedness?
 - etc.

ENVIRONMENTAL MANAGEMENT SYSTEM AUDITS (4.5.4):

- Has the organization established a program and procedure for an EMS audit?
- Are the program and procedure designed to:
 - determine conformance to the EMS?
 - determine conformance with ISO 14001?
 - provide reports to top management?
- Does program recognize the need for increased audit frequency for areas of the EMS with previous nonconformance?
- Does the program require competency of the auditors?

MANAGEMENT REVIEW (4.6):

- Does the organization's top management routinely review the EMS for effectiveness?
- Is there a set schedule for the reviews?
- Are the management reviews documented?
- Does the review information include:
 - compliance information based upon applicable environmental laws, regulations and permits?
 - internal audit reports?
 - reports on the achievement of Environmental Targets?
 - information related to changing environmental aspects and impacts?
 - summaries of internal and external communications related to the EMS?
 - etc.

- Does management include in the review the concept of continual improvement?
- Does the management review focus on potential modifications to the Environmental Policy statement and the Environmental Objectives?

SUGESTED READING MATERIAL

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